Review of: "The Influence of Hot Extrusion on The Mechanical and Wear Properties of an Al6063 Metal Matrix Composite Reinforced With Silicon Carbide Particulates"

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Potential competing interests: No potential competing interests to declare.

Comments to the Author

Ref. No.: Qeios, CC-BY 4.0, with the title “The Influence of Hot Extrusion on The Mechanical and Wear Properties of an Al6063 Metal Matrix Composite Reinforced With Silicon Carbide Particulates”

Here, the authors demonstrated the synthesis of a composite aluminium 6063 alloy with silicon carbide for 'as-cast' and 'hot extruded' conditions and then studied the mechanical and wear behaviour of these alloys. A significant improvement was observed in mechanical and wear resistance with the addition of silicon carbide as reinforcement inclusions. This advancement in the properties demonstrated the tribological advantage of these composite materials.

This paper needs the following improvements to enhance its quality for wider readership.

Comment 1

The author should rewrite the introduction with much wider aspects of composite materials and their importance in the energy sector and other potential applications so that the article can be more popular among readers.

Comment 2:

All the SEM images are not graphs; they are figures, so the author should change the manuscript accordingly.

Comment 3:

SEM images are not properly taken; even the bar length scale is missing, so it is difficult to comment on the length of ridges and grooves. The authors should use the original figures of SEM as they got from the instrument; don’t enlarge them on their own. Better to take highly magnified figures of SEM if you can manage.

Comment 4:

Graph 8 and graph 11 should be re-plotted with proper scale management so that no data overlap each other.

Comment 5:

Provide the SEM of other compositions.

Comment 6:

Explain why the Young's modulus effect on the progressive integration of SiC reinforcement from 0% to 8% in the as-cast and hot extruded conditions is increased in the manuscript.

Comment 7:

Before using any abbreviation, the author should write the full form. For instance, ASTM.

Comment 8:

Add the following references in an appropriate position in the manuscript.

i. Enhanced thermoelectric performance of n-type $Zr_{0.66}Hf_{0.34}Ni_{1+x}Sn$ Heusler nanocomposites, Journal of Alloys and Compounds, 900, 163454, 2022
ii. Reduction in thermal conductivity of n type ZrNiPb based half Heusler compound via composition Engineering approach", AIP Conference Proceedings, 2115 (1), 030584, 2019.
iii. Current Research and Future Prospective of Iron-Based Heusler Alloys as Thermoelectric Materials, Nanotechnologies in Russia, 14, 7–8, 2019
iv. A Review on Fundamentals, Design and Optimization to High ZT of Thermoelectric Materials for Application to Thermoelectric Technology, Journal of Electronic Materials, 50, 6037, 2021

Comment 9:

What significant difference has been made on any parameter you studied, mentioned in the conclusion.